

Application No.: 10/559,646  
Response dated: February 23, 2009  
Response to Office Action of November 21, 2008

### REMARKS/ARGUMENTS

This is responsive to the Office Action dated November 21, 2008. A response is due by February 21, 2009, with out an extension of the time for responding to the Office Action, although the 21<sup>st</sup> falls on a Saturday so the time for response is extended until February 23, 2009.

Claim 47 has been deemed withdrawn by the Examiner and claims 46 and 48– 56 are now pending in the application.

Claim 54 was rejected under 35 U.S.C. § 112 as being indefinite because of the use of improper Markush language. This has been corrected to “consisting of”. Therefore, reconsideration and withdrawal of the rejection is requested.

The restriction of Claim 47 is traversed. This claim has been amended to overcome the rejection under 35 U.S.C. § 112 and 35 U.S.C. § 101 for not setting forth the steps of the “use” or process. The claim was amended to address this issue. But, it is simply the use of the composition of claim 46, and continues to depend from claim 46, and is expressed as a process of applying the coating of claim 46. Therefore, reconsideration and withdrawal of the restriction requirement is respectfully requested.

Claims 46, 48-49, and 53-55 were rejected as anticipated under 35 U.S.C. § 102(b), or in the alternative, under 35 U.S.C. § 103(a), as obvious over Hamill (GB 1,039,540).

Claims 46, 48-50, and 52-55 were rejected under 35 U.S.C. § 103(a), as obvious over Hamill in view of Doner et al. (US Patent No. 6,147,206).

Claims 46, 48-50, and 52-56 were rejected under 35 U.S.C. § 103(a), as obvious over Horley et al. (EP 0 949 307) in view of Doner et al. (US Patent No. 6,147,206) combined with evidence given by Levine (US Patent Publication US 2005/0148056).

Claims 56 is rejected under 35 U.S.C. § 103(a), as obvious over Hamill in view of the Heitzman “Colorants” publication.

Claims 51 and 56 were rejected under 35 U.S.C. § 103(a), as obvious over Hamill in view of Miller et al. (US Patent No. 2,822,341).

The problem addressed by Applicant’s invention is how to reduce or avoid the use of environmentally unfriendly coalescing solvents in architectural coating compositions (e.g. paints) without creating an unacceptable loss of scrub-resistance especially when the paints are applied

Application No.: 10/559,646  
Response dated: February 23, 2009  
Response to Office Action of November 21, 2008

during periods of colder ambient temperatures. While the presently claimed invention which is being examined is to a binder polymer, understanding where the polymer is ultimately used is helpful in understanding why the cited prior art reference does not anticipate the claimed invention.

Applicant's film forming binder polymer enables the use of coalescing solvents to be avoided or at least reduced without creating a scrub resistance problem. This is achieved by using a binder polymer modified by the presence of a mixture which is obtained from plant fibre (see Page 9 lines 17 of Applicant's Specification) and which includes protein and polysaccharide. The protein and polysaccharide mixture has been "de-starched" to the extent that it contains less than at least 2 wt% of starch (see Page 9 lines 2 and 3 of Applicant's Specification). The removal of starch is essential if the mixture is to be adequately soluble in the manufacturing systems and formulations used for architectural coating compositions. The present claims have now been amended to reflect the fact that the combination contains starch, but in an amount of less than 2%, which reflect the nature of it being destarched. This combination is not anticipated by nor taught by the cited prior art references.

Hamill does not anticipate the present invention because Hamill does not teach all of the elements of applicants claims. While Hamill does disclose film forming binder polymer compositions that can contain one or more of a list of materials, the composition is for a different purpose than the present composition. The Hamill composition is a foam composition for coating paperboard.

Nowhere does Hamill teach that the mixture contains starch and in an amount of less than 2% starch. The Examiner in reading Applicant's previous claims as being of a scope to include a "no starch" limitation so as to support the position that the claims are anticipated, cannot now allege that the claims are obvious. Hamill does not teach including starch and the present claims now include it. Therefore, reconsideration and withdrawal of the Section 102 is respectfully requested.

Further, the Examiner alleges that Hamill teaches a composition containing "protein and polysaccharide", but the teaching appears to be only of a "polysaccharide or derivative thereof" or a protein. Hamill suggests a "laundry list" of materials, but has no examples suggesting a combination. Again, no where does Hamill teach that the mixture contains a starch in an amount of less than 2% starch. So, a key element is missing from the Hamill teaching and therefore it cannot anticipate the claimed invention. Nor would this limitation be obvious from Hamill. Therefore, reconsideration and withdrawal of the Section 103 rejection is respectfully requested.

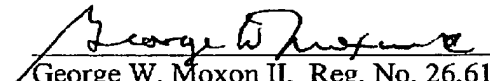
Application No.: 10/559,646  
Response dated: February 23, 2009  
Response to Office Action of November 21, 2008

The fundamental deficiencies in Hamill are not taught by nor cured by the other cited prior art references. Doner is cited for its teaching of high quality plant gum obtained from corn fiber. Doner does not teach the use of starch in an amount of less than 2 weight %. Horley is cited for its teaching of architectural coatings that contain a modified starch. But, Horley does not teach the use of starch in an amount of less than 2 weight %, and this is not taught by Doner. Levine is cited for its teaching that enzymatic hydrolysis of starch will yield soluble oligo- and mono-saccharides compositionally very similar to those found in corn gum. But, Levine does not teach the use of starch in an amount of less than 2 weight %. The Heitzman publication is cited because it teaches pigments and/or fillers, specifically titanium dioxide. However, Heitzman does not teach the use of starch in an amount of less than 2 weight %. Therefore, Heitzman would not cure the deficiencies of Hamill. Miller is cited for its teaching that most paint pigments are hydrophobic and require the presence of a dispersing agent. But, Miller does not teach the use of starch in an amount of less than 2 weight %, and would not cure the failings of Hamill. Therefore, none of the secondary references or teachings would render the presently claimed invention obvious.

For the above reasons, Applicants request reconsideration and withdrawal of the rejections and allowance of presently pending claims 46 and 48- 56.

Should the Examiner wish to discuss any of the foregoing in more detail, the undersigned attorney would welcome a telephone call.

Respectfully submitted,

  
George W. Moxon II, Reg. No. 26,615  
Roetzel & Andress  
222 South Main Street  
Akron, Ohio 44308  
Telephone: (330) 849-6689  
Facsimile: (330) 376-4577  
Attorney for Applicant(s)



FEB 23 2009

## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/559,646	12/02/2005	Glenn William Goodall	1063720050 (51097)	7269

39905 7590 11/21/2008  
ROETZEL AND ANDRESS  
222 SOUTH MAIN STREET  
AKRON, OH 44308

EXAMINER

MESH, GENNADIY

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

11/21/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding. *Response Due 2-21-09*

The time period for reply, if any, is set in the attached communication.

RECEIVED NOV 24 2008

Sent to: *11/24*

11/24/08

11/24/08

11/24/08

FEB 23 2009

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/559,646	GOODALL ET AL.	
	Examiner	Art Unit	
	GENNADIY MESH	1796	

**- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on 27 October 2008.

2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 36-56 is/are pending in the application.

4a) Of the above claim(s) 36-45 and 47 is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☒ Claim(s) 46 and 48-56 is/are rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

U.S. Patent and Trademark Office  
PTOL-326 (Rev. 08-06)

Office Action Summary

Part of Paper No./Mail Date 20081115

Application/Control Number: 10/559,646  
Art Unit: 1796

Page 2

### DETAILED ACTION

#### *Continued Examination Under 37 CFR 1.114*

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 27, 2008 has been entered.

Claims 1-35 canceled by Applicant. Claims 36 - 45 were previously withdrawn.

Claims 46 and 47 are amended. Claims 48 - 56 are newly added.

#### *Election/Restrictions*

1. Amended claim 47 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: in response to Election/Restriction requirement filed on November 9, 2007 Applicant elected Invention of Group I, claims 1 - 10 and 23 - 27 directed to Polymer binder.

Amended Claim 47 directed to different invention as **Process of applying Coating composition**, which was not originally elected.

Note, that this application contains the inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In addition to four Groups ( see Office Action mailed on October 11, 2007):

Group I, claim(s) 1 - 10 and 23 - 27, drawn to Polymer binder.

Group II, claim(s) 11 and 12, drawn to Process for modifying polymer binder.

Application/Control Number: 10/559,646

Page 3

Art Unit: 1796

Group III, claim(s) 13 – 18 and 28 - 35, drawn to Coating composition.

Group IV, claim(s) 19 - 22, drawn to Method for improving opacity

Amended Claim 47 constitutes new Group V - **Process of applying Coating composition..**

The inventions listed as Groups I – V do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: "The cited Groups lack a special technical feature because the film-forming binder, a technical feature that is common to all the Groups, fails to define a contribution over the prior art since that polymer binder is disclosed by US 3,891,580 ( see abstract, lines 14-27,column 3 and lines 17-39,column 4).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits.

Accordingly, claim 47 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Therefore, Claims 46 and 48-56 are active and will examine.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Application/Control Number: 10/559,646  
Art Unit: 1796

Page 4

2. Claim 54 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention : language " a fiber selected from at least one of the plants in the group consisting essentially of " is indefinite, because group is open to indefinite number of any new members. Note, that language of Markush group has to be closed by using phrase "consisting of " - see MPEP 2111.03. In this case, claim language will be understood as " consisting of ".

***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 46, 48-49 and 53 - 55 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hamill ( GB 1,039,540).

Hamill discloses coating composition ( see page 2,lines 20 – 60) comprising ( see page 2,lines 20 - 60) at least one polymer, for example styrenic ( see page 2, lines 21-30), mixture of polysaccharides and proteins, including plant gum, vegetable proteins and reactive compounds as epoxy resins and **may not have any starches**.

Regarding Claim 55 Hamill discloses that coating is liquid, preferably in form of water based latex ( see page 3,lines 65-88). Note, that polysaccharides and proteins



Application/Control Number: 10/559,646

Page 5

Art Unit: 1796

can be bonded to latex particles by reactive compound ( epoxy resin), thus forming outside shell on core of latex particle.

It is noted that claims 53 and 54 are in format of product-by-process claim. In accordance with the applicable to the treatment of product-by-process claims (MPEP 2113), the process limitations in claims 53 and 54 have no probative value absent evidence to the contrary.

In addition note, that case law holds that "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

#### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 46, 48 - 50 and 52 - 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamill in view of Doner et al.( US 6,147,206 ).

Discussion ( see paragraph 3 above) with respect to Hamill incorporated herein by reference.

Application/Control Number: 10/559,646  
Art Unit: 1796

Page 6

As stated above Hamill discloses coating composition including plant gum, but silent regarding source of plant gum.

However, Doner teach that high quality plant gum( comprising Hemicellulose B) is obtainable from corn fiber ( see abstract). Doner further teach that corn fiber gum is highly soluble in water, colorless, lacks objectionable aroma and useful for variety of application, including film formation ( see abstract).

Therefore, it would have been obvious to one of ordinary of skill at time of invention to use plant gum, obtained by method of Doner from corn fiber, due to it high solubility in water, colorless, odorless and film formation properties ( see abstract) in composition disclosed by Hamill.

Regarding limitations of Claim 49, 50 and 54: Doner teach that protein can be present in plant gum due to stable linkage between hemicelluloses and proteins ( see column 2, lines 50 – 56).

Regarding Claims 53 see Doner: abstract, Figure on Sheet 1, columns 4-8 and Examples.

5. Claims 46, 48 -50 and 52 - 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horley et al. ( EP 0 949 307) in view of Doner et al.( US 6,147,206) combine with evidence given by Levine ( US 2005/0148056).

Discussion with respect to Doner ( see paragraph 2) incorporated herein by reference.

Horley discloses ( see abstract) aqueous architectural coating composition ( water based latex paint), comprising film –forming polymeric binder, wherein modified starch (

Application/Control Number: 10/559,646

Page 7

Art Unit: 1796

including corn starch – see lines 24-29, page 3) grafted to chains of copolymerized ethylenically unsaturated monomers in the amount up to 50 wt.% ( see claim 1).

Horley also discloses that instability of aqueous starch-containing polymeric binders can lead to phase separation and unpredictable increases of viscosities ( see [0004]) , but can be resolve by subjecting starch to acid or enzymatic hydrolysis with following step of reacting with molecules comprising functional groups ( see [005]).

Note, that during enzymatic hydrolysis starch will yield variety of soluble oligo- and mono- saccharides compositionally very similar to those found in corn gum, including xylose, mannose and arabinose ( evidence can be found in Levine – see [0006] and [0072]).

Therefore, it would have been to one of ordinary of skill at the time of the invention to use corn gum obtained by method of Doner from corn fiber, due to it high solubility in water, colorless, odorless and film formation properties ( see abstract) in composition disclosed by Horley in order to obtained stable aqueous based paint with out starch preparation step ( as acid treatment or hydrolysis).

Regarding Claim 56 see Horley paragraph [0019].

6. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamill in view of Heitzman " Colorants".

Discussion ( see paragraph 3 above) with respect to Hamill incorporated herein by reference.

Application/Control Number: 10/559,646  
Art Unit: 1796

Page 8

Hamill discloses coating composition, comprising polymeric binder and pigments and/or fillers, specifically titanium dioxide ( see page 3, lines 60 -66), but silent regarding Rutile form of Titanium dioxide.

However, Heitzman teach ( see Colorants page 3, paragraph Titanium Dioxide ) that:"

Titanium dioxide is the most common white of choice and by weight; it is actually the most widely used pigment. ... Its outstanding importance is due to its light scattering properties, its FDA approval, and excellent properties. ...Titanium dioxide is used in nearly all plastics to provide pastels and to adjust colors. The opacity is valued for ascetics and its ability to absorb UV radiation. **Rutile** titanium dioxide is the first choice for most plastic applications. **Anatase** titanium dioxide is less yellow, **not highly recommended for outdoor use**, blocks **less UV** radiation and is generally more reactive."

Therefore, it would have been to one of ordinary of skill use Rutile form of titanium dioxide per teaching of Heitzman in composition disclosed by Hamill due to higher stability and ability to absorb more UV radiation that Anatase form.

7. Claims 51 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamill in view of Miller et al. ( US 2,822,341).

Discussion ( see paragraph 3 above) with respect to Hamill incorporated herein by reference.

Application/Control Number: 10/559,646

Page 9

Art Unit: 1796

As it was discussed above Hamill discloses coating composition, comprising protein, but silent regarding amount of protein in composition.

However, Miller teach ( see column 3, lines 7-25) that: " Most paint pigments are hydrophobic and require the presence of a dispersing agent for the production of a water dispersion of the pigments suitable for mixing with the latex. Many of the dispersing agents known to the colloid art can be utilized, including casein, soya bean protein and other animal and vegetable proteins (including albumens) capable of reacting with an alkaline material to become dispersible in water,... other water dispersible cellulose derivatives, as well as other hydrophilic colloids well known in the colloid art. Two or more dispersing agents can advantageously be used in a single paint. Typical paint pigments which are successfully incorporated with the polymer latex into a paint include titanium dioxide (the anatase or rutile grade is satisfactory), clay, silica , lithopone, mica, barium sulfate, talc and zinc sulfide." Regarding amount of protein in paint composition see lines 55-61.

Therefore, it would have been to one of ordinary of skill use vegetable protein ( in amount claimed by Applicant) as pigment dispersing agent per teaching of Miller in paint coating composition disclosed by Hamill with reasonable expectation of success. I

#### ***Response to Arguments***

8. Applicant's arguments filed October 27, 2008 have been fully considered but they are not persuasive.

Application/Control Number: 10/559,646  
Art Unit: 1796

Page 10

Applicant's arguments related to previously rejected Claim 46 under 35 U.S.C. 102(b) as being anticipated by Hamill ( GB 1,039,540) based on statement that reference does not teach " that (binder) mixture contains less than 2% starch".

However, as it was stated in rejection, composition of Hamill does not require presence starch at all and for this reason satisfied limitation of Claim 46 (f) as " the mixture contains less than 2 wt. % of starch".

For this reason, Applicant's arguments were found unpersuasive.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GENNADIY MESH whose telephone number is (571)272-2901. The examiner can normally be reached on 10 a.m - 6 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272 1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number: 10/559,646  
Art Unit: 1796

Page 11

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gennadiy Mesh  
Examiner  
Art Unit 1796

/GM/

/Vasu Jagannathan/  
Supervisory Patent Examiner, Art Unit 1796

FEB 23 2009

<b>Notice of References Cited</b>	Application/Control No. 10/559,646	Applicant(s)/Patent Under Reexamination GOODALL ET AL.	
	Examiner GENNADIY MESH	Art Unit 1796	Page 1 of 1

## U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2,822,341	02-1958	MILLER VERLE A; et. al.	524/317
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

## FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N	EP 0 949 307	10-1999	GB	Horley	C09D 151/08
	O					
	P					
	Q					
	R					
	S					
	T					

## NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Scott Heitzman, Colorants ( Abstract and Article), published March 15, 2002
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office  
PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 20081115